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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/682,087	10/10/2003	William Gage	71493-1200 /pw	9200

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EXAMINER

MILORD, MARCEAU

ART UNIT	PAPER NUMBER
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2618

DATE MAILED: 07/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/682,087	GAGE ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Marceau Milord	2618	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 October 2003.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cain (US Patent No 6958986 B2) in view of Hasty, Jr et al (US Patent No 7058018 B1).

Regarding claims 1, 12, 17, Cain discloses a method of selecting a communication path (fig. 4, figs. 12-16), in a wireless network comprising a plurality of nodes and wireless communication links between the nodes, from a plurality of potential communication paths comprising different combinations of said links from a source node to a target node, comprising the steps of, in the source node: determining for each link in the potential communication paths a cost of interference dependent upon a number of nodes affected by a signal sent via the respective link (col. 2, lines 21-67) ;determining a total cost for each potential communication path, the total cost being dependent upon combined costs of interference for the links of the respective potential communication path (col. 3, lines 11-52).

However, Cain does not specifically disclose the step of selecting a communication path from the source node to the target node a potential communication path having a lowest total cost.

On the other hand, Hasty, Jr et al, from the same field of endeavor, discloses a system and method for evaluating at least one communication link between a transmitting node and a receiving node in a communications network. The system and method perform the operation of assigning respective link quality values to the respective communication links based on a transmit power level value at which the respective data packets were transmitted by the transmitting node over the respective links, a received sensitivity value of the receiving node receiving the data packets, and a receive signal strength indication value provided by the network for each respective link. The system and method can examine a content of a data packet being sent between the two nodes to determine the TPL, and can receive the RSSI value from a physical layer of the communications network. Accordingly, the system and method can determine which link that additional data packets are to be sent by the transmitting node to the receiving node via the communication link based on the link quality values. Specifically, the link having the highest link quality value is selected (col. 2, line 55- col. 2, line 22). Furthermore, these nodes further include a memory that is capable of storing, among other things, routing information pertaining to other nodes in the network. The nodes exchange their respective routing information, referred to as routing advertisements or routing table information, with each other via a broadcasting mechanism periodically, for example, when a new node enters the network, or when existing nodes in the network move (col. 4, lines 15-39). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply

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the technique of Hasty to the communication system of Cain in order to evaluate the integrity of a link between nodes based on the strength at which a signal is received over the link and transmission power level at which a signal is transmitted over the link, and determine whether to use the link for data packet routing between the nodes.

Regarding claims 2, 13, 18, Cain as modified discloses a method of selecting a communication path (fig. 4, figs. 12-16), including the step of, in the source node, determining for each link in the potential communication paths a cost of transmission dependent upon a data rate for a signal sent via the respective link, wherein the total cost determined for each potential communication path is also dependent upon combined costs of transmission for the links of the respective potential communication path (col. 2, lines 28-56; col. 8, line 43- col. 9, line 30; col. 36, lines 45-64)

Regarding claims 3, 14, 19, Cain as modified discloses a method of selecting a communication path (fig. 4, figs. 12-16), including the step of, in the source node, determining for each link in the potential communication paths a cost of coordination of transmissions on the link with transmissions from other nodes of the network, wherein the total cost determined for each potential communication path is also dependent upon combined costs of coordination for the links of the respective potential communication path (col. 2, lines 28-56; col. 8, line 43- col. 9, line 30; col. 36, lines 45-64)

Regarding claim 4, Cain as modified discloses a method of selecting a communication path (fig. 4, figs. 12-16), including the step of, in the source node, determining for each link in the potential communication paths a cost of coordination of transmissions on the link with transmissions from other nodes of the network, wherein the total cost determined for each

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potential communication path is also dependent upon combined costs of coordination for the links of the respective potential communication path (col. 2, lines 28-56; col. 8, line 43- col. 9, line 30; col. 36, lines 45-64)

Regarding claims 5, 15, 20, Cain as modified discloses a method of selecting a communication path (fig. 4, figs. 12-16), wherein the source node determines the total cost for each potential communications path as a sum of the combined costs for the links of the respective potential communication path (col. 9, line 38- col. 10, line 31).

Regarding claim 6, Cain as modified discloses a method of selecting a communication path (fig. 4, figs. 12-16), wherein the source node determines the total cost for each potential communications path as a sum of the combined costs for the links of the respective potential communication path (col. 9, line 38- col. 10, line 31).

Regarding claim 7, Cain as modified discloses a method of selecting a communication path (fig. 4, figs. 12-16), wherein the source node determines the total cost for each potential communications path as a sum of the combined costs for the links of the respective potential communication path (col. 9, line 38- col. 10, line 31).

Regarding claim 8, Cain as modified discloses a method of selecting a communication path (fig. 4, figs. 12-16), wherein the cost of interference for each link in the potential communication paths determined by the source node is also dependent upon a time interval required for a signal sent via the respective link (col. 11, line 24- col. 12, line 38).

Regarding claim 9, Cain as modified discloses a method of selecting a communication path (fig. 4, figs. 12-16), wherein the cost of interference for each link in the potential

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communication paths determined by the source node is also dependent upon a time interval required for a signal sent via the respective link (col. 11, line 24- col. 12, line 38).

Regarding claim 10, Cain as modified discloses a method of selecting a communication path (fig. 4, figs. 12-16), wherein the cost of interference for each link in the potential communication paths determined by the source node is also dependent upon a time interval required for a signal sent via the respective link (col. 11, line 24- col. 12, line 38).

Regarding claim 11, Cain as modified discloses a method of selecting a communication path (fig. 4, figs. 12-16), wherein the cost of coordination for each link in the potential communication paths determined by the source node is also dependent upon a time interval required for coordinating activities (col. 8, line 19- col. 9, line 30).

#### Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Redi et al discloses a method for performing energy-based routing in communications networks.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marceau Milord whose telephone number is 571-272-7853. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on 571-272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MARCEAU MILORD

  
**MARCEAU MILORD**  
**PRIMARY EXAMINER**

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Primary Examiner

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